

Performance vs. Materials and Workmanship

- **Materials and Workmanship** (1 to 4 years)
 - ▶ Method specifications
 - ▶ Includes distresses resulting from defective materials and/or workmanship
- **Performance** (5 to 10, 15, and more)
 - ▶ Contractor develops performance specification
 - ▶ Contractor responsible for mix decisions
 - ▶ Contractor responsible for operations
 - ▶ Includes full responsibility for pavement performance

Warranted Items

Indiana

- Ride (IRI)
- Rutting
- Friction
- Cracking
 - ▶ Transverse
 - ▶ Longitudinal
- 5-Year Warranty Bond
- A + B Bidding

Other DOT's

- Cracking
- Smoothness
- Segregation
- Shoving
- Potholes
- Bleeding, Flushing, Raveling
- Rutting

Who is Responsible for What?

DOT

- Structural Design and Typical Section
- Minimum Binder and Aggregate Req's
- Traffic Monitoring
- Performance Monitoring/Surveys
- Maintenance other than pavement related

Contractor

- Specification Development
- Materials Selection
- Mixture Designs
- Production and Lay Down QC/QA
- Pavement Maintenance
- Warranty Bond

Warranties – Do They Make Cents???

DOT Wants:

1. Reduced Staffing for Inspection and Testing
2. Contract Compliance
3. Increased Pavement Performance
4. Reduction of Early Maintenance Costs
5. Increased Materials and Construction Quality
6. Encouragement for Innovation

Warranties – Do They Make Cents??? – Con't

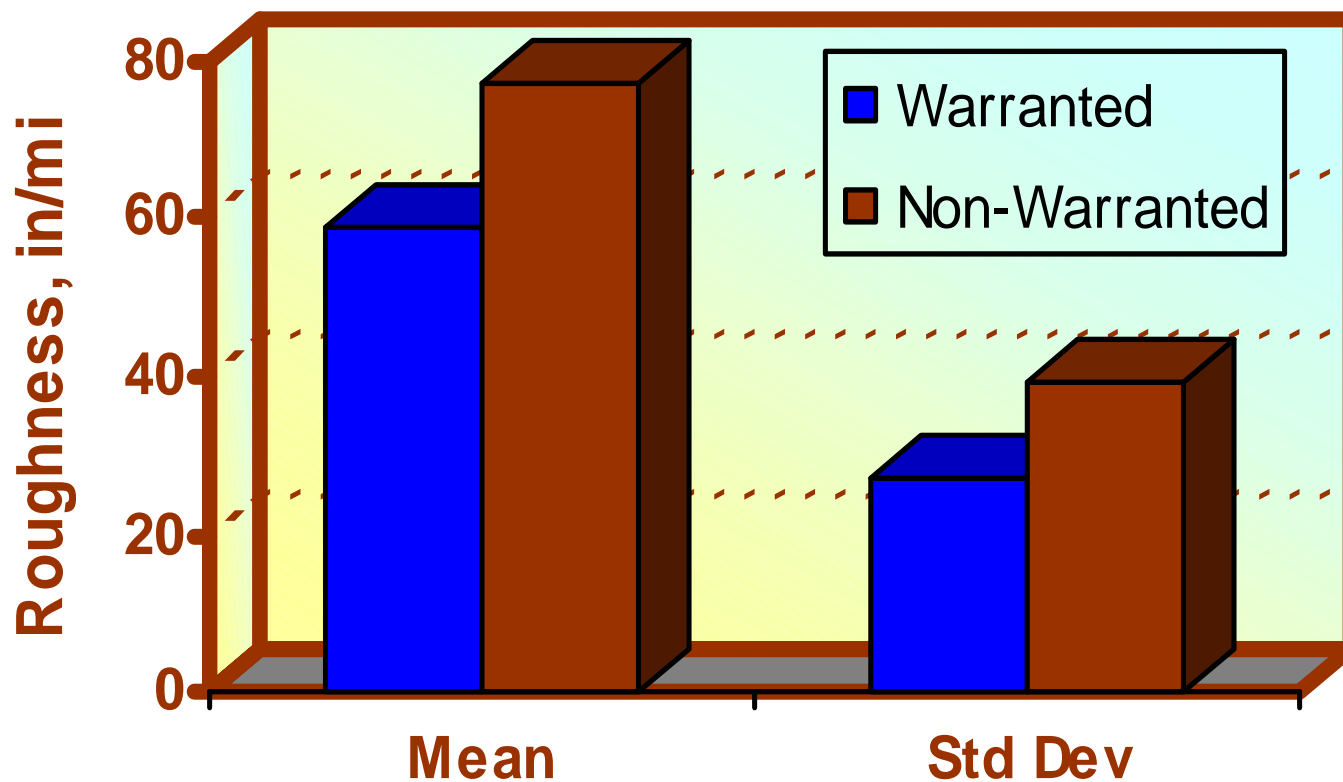
Contractor Wants:

1. Responsibility “Let me do the job”
2. Optimize Risk & Increase Profits
3. Reduced External Conflicts
4. Freedom for Innovation
5. Increase Opportunities to Leave a Lasting Impression

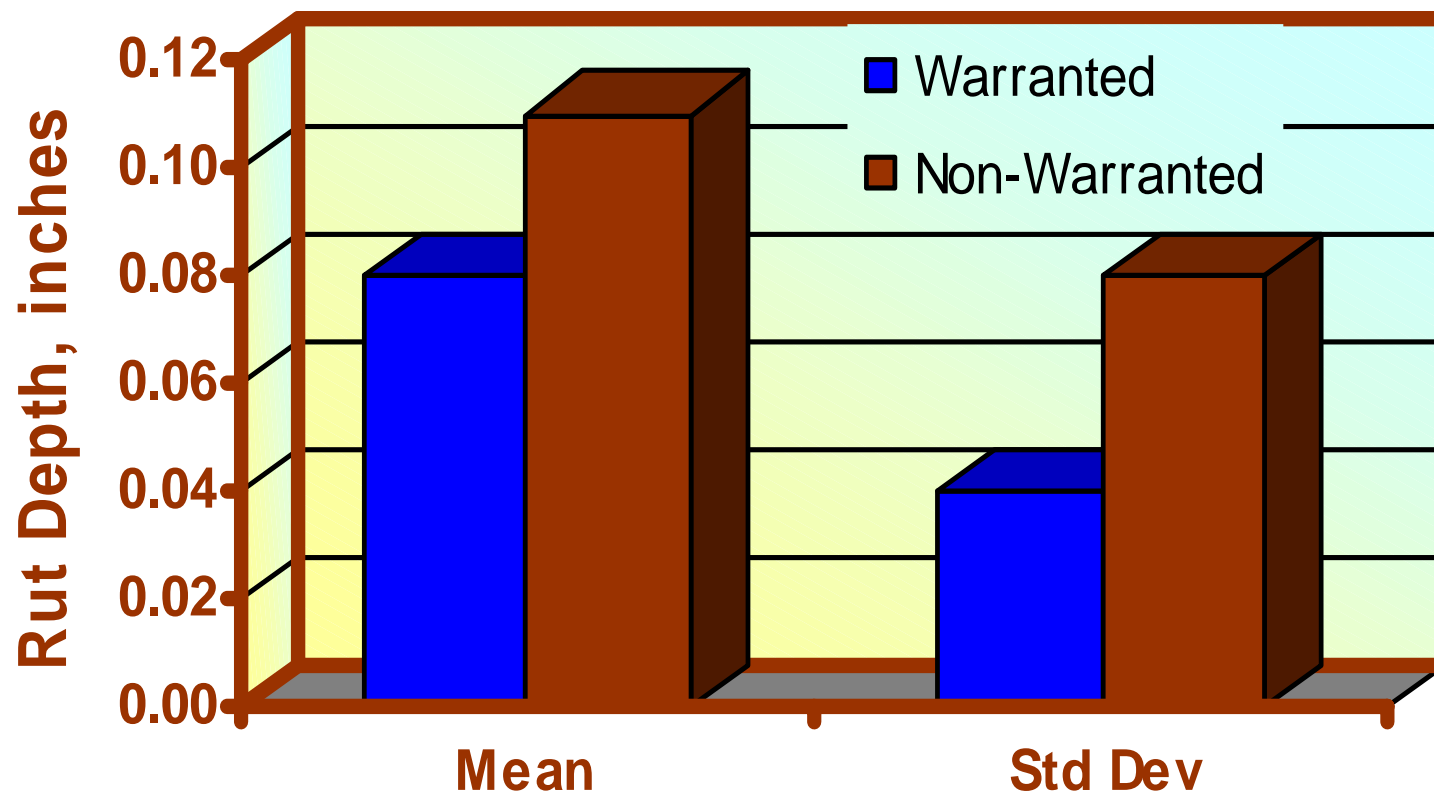
Indiana Warranties High Volume Interstates

No.	Type	Years
4	HMA w/Crack and Seat	5-Yr
5	HMA w/Rubblization	5-Yr
2	Portland Cement Concrete	5-Yr
2	Micro-Surfacing	2-Yr

Roughness for Warranted and non-warranted HMA



Rutting for Warranted and non-warranted HMA



Typical Increase of Costs Due to Warranty

- Indiana uses a single bid item
 - ▶ Warranted HMA Pavement
- Additional costs to the Contractor for
 - ▶ Warranty Bond, Risk
 - ▶ Quality Assurance, etc.
- Five to ten percent

Benefits

- Initial capital costs of warranty projects are + 5 to 10 percent
- Predicted 25-year cost to maintain the network (smoothness)
 - ▶ 1.08 Billion for warranty strategy
 - ▶ 1.47 Billion of non-warranties

Benefits – Con't

- Cost savings for using warranties is **27 percent**.
- Indiana DOT and Industry both have accomplished their goals to provide **smoother** and **safer** pavements with **fewer defects** over a **longer period of time**, which **reduces delays and congestion**.